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Small and Medium Enterprises

A Cross-Country Analysis with a New Data Set

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Abstract

In the aftermath of the global financial crisis of 2008–2009, there has been an increased interest in the role of small and medium enterprises in job creation and economic growth. However the lack of consistent indicators at the country level restricts extensive cross-country analyses of lending to small and medium enterprises. This paper introduces a new dataset to fill this gap in the small and medium enterprise data landscape. In addition, it provides the first set of results of analyses with this new dataset, predicting the global small and

medium enterprise lending volume to be \$10 trillion. The bulk of this volume, 70 percent, is in high-income countries. On average, small and medium enterprise loans constitute 13 percent of gross domestic product in developed countries and 3 percent in developing countries. Note that although a unique small and medium enterprise definition does not exist, differences in definitions across countries are not statistically significant in explaining the differences in small and medium enterprise lending volumes.

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Small and Medium Enterprises: A Cross-Country Analysis with a New Data Set^{*}

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<http://www.cgap.org/financialindicators>

1. Introduction

Recent studies show that SME development is closely linked with growth. For example, Beck *et al.* (2005a) find a robust, positive relationship between the relative size of the SME sector and economic growth, even when controlling for other growth determinants. According to Ayyagari *et al.* (2007), in high-income countries formal SMEs contribute to 50 percent of GDP on average. Furthermore, in many economies the majority of jobs are provided by SMEs. In OECD countries, for example, SMEs with less than 250 employees employ two-thirds of the formal work force (Beck *et al.*, 2008b; Dietrich, 2010). Using country-level data, Ayyagari *et al.* estimate that, on average, SMEs account for close to 60 percent of employment in the manufacturing sector. According to SME Performance Review (EC, 2009), between 2002 and 2008, the number of jobs in SMEs increased at an average annual rate of 1.9 percent while the number of jobs in large enterprises increased by only 0.8 percent. In absolute numbers, 9.4 million jobs were created in the SME sector in EU-27 between 2002 and 2008. Also, it is often argued that SMEs are more innovative than larger firms. In developed countries, SMEs commonly follow “niche strategies,” using high product quality, flexibility, and responsiveness to customer needs as a means of competing with large-scale mass producers (see, for example, Hallberg, 2000, and Snodgrass and Biggs, 1996).

As the world economies are recovering from the financial crisis of 2008-9, many economies urgently need to create employment opportunities for their citizens. In this respect, creation and growth of SMEs is an important item on the policy agenda due to evidence that points to significant contributions by SMEs to employment. In addition, regulatory measures are necessary to ease access to formal financial services by SMEs. Historically, SMEs have been more likely than larger firms to be denied new loans during a financial crisis. For example, Hallberg (2000) argues that the events of the 1990s in Latin America and East Asia confirm this proposition. More recently, in the aftermath of the global financial crisis, SME Performance Review (EC, 2009) reports anecdotal evidence pointing to insufficient market demand as the prime obstacle faced by SMEs, followed by difficulties in accessing finance.

Given the importance of SMEs in supporting sustainable, diversified, long-term economic growth, they have, indeed, attracted renewed attention in the wake of the 2008-9 financial crisis.

Recently, at the Pittsburgh G-20 summit, the G-20 has committed to identifying lessons learned from the innovative approaches to the provision of financial services to SMEs and to promoting successful regulatory and policy approaches.¹ SME development is high on the reform agenda of many governments. A broad range of policies and programs target improvements in SME business environments, as well as financial support to SMEs.

Despite the importance of SMEs for job creation and production, most of the SME literature points to the fact that small and medium firms face higher barriers to external financing than large firms, which limits their growth and development.² Numerous studies that use firm-level survey data demonstrate that access to finance and the cost of credit do not only pose barriers to SME financing, but also constrain SMEs more than large firms. Small firms find it difficult to obtain commercial bank financing, especially long-term loans, for a number of reasons, including lack of collateral, difficulties in proving creditworthiness, small cash flows, inadequate credit history, high risk premiums, underdeveloped bank-borrower relationships and high transaction costs (IFC, 2009). This is evidenced in the works of Scholtens (1999), Schiffer and Weder (2001), Galindo and Schiantarelli (2003), IADB (2004), Beck *et al.* (2006), and Beck and Demirgüç-Kunt (2006).³ In particular, Beck *et al.* (2008a) conclude that smaller firms and firms in countries with underdeveloped financial and legal systems use less external finance, based on data from a firm-level survey in 48 countries.⁴

A broad range of business environment factors are linked to SME performance. For example, Ayyagari *et al.* (2007) find that lower costs of entry and better credit information sharing are associated with a larger size of the SME sector, while higher exit costs are associated with a larger informal economy. The overall banking structure is another important factor. Shen *et al.*

¹ See the Pittsburgh G-20 Summit “Leaders’ Statement” at <http://www.pittsburghsummit.gov>.

² Enterprise Analysis survey data at <http://www.enterprisesurveys.org/>; IFC (2009); Beck *et al.* (2008b).

³ For earlier research, see Hartwell (1947) who reports a negative correlation between loan size and interest rates, and Murphy (1983) who argues that small loans to small firms are more costly for the lenders.

⁴ Studies that focus on a specific country report similar results. Stephanou and Rodriguez (2008) find that access to credit is one of the biggest constraints for SMEs in Colombia; Binks and Ennew (1997) find that the main constraints to growth of SMEs in the UK include management, labor skills, regulation and lack of access to finance; Hutchinson (2006) compares the cases of a leading transition country, Slovenia and an established market economy, Belgium, and finds that the SME sector in Slovenia remains underdeveloped, mainly due to the inability to raise external finance. Studies by Anderson and Kegels (1997), Budina *et al.* (2000), Gros and Suhrecke (2000), Konings *et al.* (2003) all indicate that this appears to be the case in most of Central and Eastern Europe.

(2009), using Chinese data, find that total bank assets are not significant for banks' decision to lend to SMEs. Yet, more local lending authority, more competition, carefully designed incentive schemes, and stronger law enforcement encourage commercial banks to lend to SMEs. Macroeconomic instability in developing countries and competition in developed countries are perceived as the biggest obstacles to SME finance. Rocha *et al.* (2010) provide supportive evidence from banks in Middle East and North Africa, noting lack of SME transparency and underdeveloped financial systems as the main obstacles.^{5,6} At the same time, a recent study by Beck *et al.* (2008b) indicates that most commercial banks perceive the SME sector as profitable.

The lack of consistent indicators restricts extensive cross-country analyses of SME lending. Most countries either do not collect data on SME lending or do so on an *ad hoc* basis. Even when SME data are available, it is extremely difficult to perform a cross-country analysis in the absence of a standard definition as to what constitutes an SME. Though SMEs are commonly defined as registered businesses with less than 250 employees (IFC, 2009), the definition still varies from country to country and even from bank to bank. In this respect, an OECD conference on SMEs in 2004 made two key policy recommendations to both member and non-member economies: (i) develop greater international comparability of SME statistics, and (ii) develop a common definition of an SME.⁷ Without reliable SME data, it is difficult for policy makers to implement programs aimed at expanding and strengthening the SME sector.

⁵ One strand of the literature on SME financing indicates that SMEs pay higher interest rates on formal bank credit. For example, Cressy and Toivanen (2001) find that collateral provisions and loan size reduce the interest rate paid and that better borrowers get larger loans and lower interest rates. Hernandez-Canovas and Martinez-Solano (2007), using firm-level data from Spain, argue that close relationships with financial institutions may generate advantages such as improved conditions of financing and increased credit availability. Furthermore, Dietrich (2010) argues that the lack of negotiating power of small enterprises has significant explanatory power in explaining differences in lending rates between small and large enterprises.

⁶ There is still an ongoing debate regarding bank size and/or ownership and SME lending. Until recently, a large strand of literature argued that small banks are more likely to finance SMEs as they are better suited to engage in "relationship lending," (*see* Keeton, 1995; Berger and Udell, 1995; and Strahan and Weston, 1996). The strength of bank-borrower relationship is argued to be positively related to various credit terms (Blackwell and Winters, 1997; Harhoff and Korting, 1998; Degryse and Van Cayseele, 2000; Bodenhorn, 2003; Peltoniemi, 2007). However, some recent studies, including Berger and Udell (2006), Berger *et al.* (2007), de la Torre *et al.* (2010) and Beck *et al.* (2008b), have disputed this conviction by arguing that large banks, relative to other institutions, can have a comparative advantage in financing SMEs through arms-length lending technologies, such as asset-based lending, factoring, leasing, fixed-asset lending and credit scoring, as opposed to relationship lending.

⁷ Second OECD Conference of Ministers Responsible for Small and Medium-Sized Enterprises (SMEs), Istanbul, 2004.

This paper introduces a new cross-country data set collected through a survey of regulators at the country level, and expands on the existing literature to analyze access to finance by SMEs. The paper draws on the report and database of *Financial Access 2010* (CGAP and WBG, 2010), the second in a series of annual reports by CGAP and the World Bank Group (WBG) on the financial inclusion agenda based on survey data collected from financial regulators around the world. More specifically, this new data set collects information on the level of lending to SMEs, the definition of SMEs, and country-level initiatives through which lending to SMEs is monitored. It is also the first attempt at collecting global comparable SME statistics.

This new database collects data from financial regulators, mostly central banks and bank superintendents, around the world. Although regulators collect a wide array of portfolio data from regulated financial institutions, SME lending data are not necessarily among the regularly collected statistics, and some parts of SME lending are done through unregulated institutions. Nevertheless, according to *Financial Access 2010*, the experience of some countries shows that collection of data on lending to SMEs is possible on a monthly basis with a clear SME definition and sound reporting requirements.

The analysis of the new data indicates two main findings. First, many regulators collect data on SME financing; however, there is no unique definition of an SME. At the same time, the results indicate that differences in definitions across countries are not statistically significant in explaining the differences in SME lending volumes. Second, given this, the paper goes on to estimate the global SME lending volume at \$10 trillion, roughly two-thirds of the current size of the US economy. The bulk of this volume, 70 percent, is in high-income OECD countries. On average, SME loans constitute 13 percent of GDP in developed countries and 3 percent in developing countries.

The rest of the paper is organized as follows. Section 2 introduces the dataset. Econometric analyses are reported in section 3, and predictions of global SME lending volume are discussed in section 4. Section 5 concludes.

2. Data

A new and unique data set on SME financing volumes across the world is collected through the *Financial Access 2010* survey in January-April of 2010 by CGAP/World Bank Group.⁸ The survey annually collects data from the main financial regulators such as central banks or bank supervisory agencies in 140+ countries. One of the objectives of the 2010 survey was to identify the feasibility of collecting consistent cross-country data on SMEs from financial regulators. To achieve this objective, the survey asked about existing institutional arrangements for collecting SME data and about SME definitions used by the authorities. It also requested the most recent statistics on the volume and number of SME loans, as well as the number of SMEs with outstanding loans. The data collected is as of the end of 2009.

As is the case with most data collection endeavors, the survey methodology has some limitations. First, the survey collects information only on regulated financial institutions, leaving out non-regulated providers of financial services. This practice is likely to understate the scale of SME financing, as lending to SMEs is often done by non-regulated credit providers. Second, even though the main financial regulator was asked to provide data on all regulated financial institutions, in cases where some financial institutions are regulated by secondary regulators, the data are rarely available. As a result, the data understate the true scale of overall SME lending.

The survey asks regulators if they monitor the level of lending to SMEs by regulated financial institutions through regular or irregular reporting, through periodic surveys of financial institutions, through collecting estimates from credit registries and/or by using any other method. In addition, in the cases where a different institution than the financial regulator is responsible for monitoring SME lending, regulators were asked to identify this institution.

Out of 74 countries that reported that they collect data on SME finance, nearly 80 percent – 59 countries – stated they collected information on a regular basis. Financial regulators in middle and low-income countries are more likely to require regular reporting of SME statistics. Out of

⁸ The complete *Financial Access* database is available online at <http://www.cgap.org/financialindicators>.

the 59 countries that collect SME lending data on a regular basis, 86 percent are low and middle-income countries. Table 1 provides detailed information from the survey.

In a number of countries where data are not collected through regular reporting, they are collected through surveys of financial institutions or by estimating lending volume in credit registries. Credit registries contain loan level data and allow estimation of a variety of SME statistics using loan size as a proxy for an SME definition. In 13 countries, including Argentina, Tunisia and Brazil, regulators use public credit registries to estimate the volume of SME lending. In 23 countries regulators conduct periodic surveys of financial institutions to monitor SME lending. The frequency of surveys varies across countries. For example, Estonia, Singapore and Armenia conduct such surveys annually, Algeria and Tunisia monthly, while Uganda does it on an *ad hoc* basis. Financial institution surveys can be an important tool for a regulator to collect information not only on SME lending volumes, but on other aspects of SME finance such as fees and number of applications received and rejected, all of which are essential for the implementation of SME finance reforms and programs. In 10 countries, 8 of which are in the Western African Monetary Union, regulators combine information from the credit registries and periodic surveys from financial institutions.

There is a clear regional pattern in reporting SME data. More than half of the countries in Asia and Africa report that they collect information on SME finance on a regular basis. These are also regions where regulators tend to identify access to finance as a priority. Financial regulators in high-income countries and in Latin America and the Caribbean are the least likely to collect data on SME finance, as some other agency is usually assigned this task. Most importantly, the survey was able to collect data on the volume of SME financing from 50 countries, which enables us to assess cross-country variation in the levels of SME financing.

2.1 SME definitions

One of the main challenges in performing a cross-country analysis of SME data is the absence of a universal definition of what constitutes an SME. A number of efforts aim to streamline and harmonize SME definitions (OECD, 2004), although the heterogeneity of SMEs themselves and the nature of the economy they operate in might mean that establishing a global definition is not

feasible. We discuss the existing definitions of SMEs below and explore to what extent the difference in definitions is associated with observed variation in the level of SME financing. In addition, we supplement the information on SME definitions available from the *Financial Access 2010* survey with the information available from public sources.⁹

The most common definitions used by regulators are based on the number of employees, sales and/or loan size. The most common among the three is the number-of-employees criterion. Sixty-eight countries provided information on the SME definition criteria used by the financial regulator. Fifty of them use the number-of-employees criterion, and 29 out of these 50 also use the other two criteria. A total of 41 regulators use maximum sales value criteria and 15 use maximum loan value criteria to define an SME (Table 2).

Number of employees and sale volumes are probably the most accurate parameters to define SME, but these data are not always available from lenders. Banks may collect this information at the time of evaluating loan applications, but often do not keep it in their systems and as a result they are not able to report lending volumes based on these criteria. As a result, some countries choose to rely on loan size as a proxy when collecting information on SME finance from financial institutions. Extracting information on loans to firms below a certain size and loans to individual entrepreneurs can be a reasonable approximation for SME lending volume. In *Financial Access 2010* only 15 countries stated that they use loan size as a proxy for defining an SME. Similar to the definitions based on the number of employees and sales, there is a substantial amount of variation among countries.

Data availability and quality for SME lending depend on the way financial institutions and credit registries handle firm level data from loan applications, as they are the primary data collectors. Financial regulators collect these data from institutions and aggregate them. In this respect, there seems to be a need to harmonize SME definitions within each country even though such a task might be unfeasible across countries. In the long run, encouraging financial institutions to collect and maintain information on the number of employees and sale volumes in their systems will

⁹ Additional data were used from the following sources: UNDP country studies, MSME Country Indicators (WBG/IFC), and central bank websites.

allow for more accurate monitoring of SME lending in line with the existing official definition. These data may also be useful to banks themselves for client segmentation and development of SME scoring models. In the short run, collecting data using loan size criteria as a proxy may serve as a reasonable proxy of SME volumes for regulators.

2.2 Values and numbers of outstanding loans

In the *Financial Access 2010* sample, 50 out of 142 regulators were able to provide data on the total value of outstanding loans to SMEs. Out of these, 30 are middle-income and 14 are high-income countries (Table 3). Among low-income countries, only Afghanistan, Bangladesh, Liberia, Pakistan, Tajikistan and Uzbekistan were able to provide these data points. The ratio of SME lending to GDP ranges from less than 1 percent in Tajikistan to more than 50 percent in the Netherlands and Portugal. The median ratio of SME credit to GDP is 6.4 percent, and in 75 percent of the economies in the sample, it is below 15 percent. The value of outstanding loans to SMEs as a percentage of total loans also shows a high degree of variation reflecting the structure of the local financial market. Overall, high-income countries tend to have higher ratios of SME finance volume to GDP and total loans, suggesting a more developed SME finance market compared with developing countries.

It is less common for regulators to collect data on total numbers of outstanding loans to SMEs than on total values of outstanding loans to SMEs. Only 26 countries provided data on the number of outstanding loans to SMEs, 9 of which are in Latin America. All the 26 countries that provided data on the total number of outstanding loans to SMEs also provided data on the total value of outstanding loans to SMEs.

Only 16 countries provided data on the number of SMEs with outstanding loans, out of which four are high-income countries, eight middle-income countries, and four low-income countries. All of these countries also provided data on values of outstanding loans to SMEs, and 11 of them provided data on total number of outstanding loans to SMEs.

3. Cross-country covariates of SME financing

This section discusses macroeconomic and institutional factors that affect lending to SMEs using cross-country data from the *Financial Access* database introduced above, and common indicators of growth and development. We use the standard cross-country regression framework, which has both advantages and disadvantages. This framework is useful for obtaining a global picture of SME lending volumes, and for informing the policy debate from a global perspective. However, it is not necessarily the best tool to derive country-specific policy implications, as it does not consider within-country variations in SME lending.

To what extent is cross-country variation in the volume of SME financing driven by differences in the definition? This is an important first question before starting more detailed analyses of the data, since SME definitions vary greatly across countries, as evidenced in Section 2.1 above. This variation in SME definitions might in fact cause differences in levels of SME financing across countries rather than indicators of economic growth and development.

Estimation results are presented in Table 4 and show no consistent and robust correlations between the levels of SME finance and definition criteria. We do not find statistically significant correlations between the value of SME financing and the maximum number of employees used as a criterion to define SME.¹⁰ In a smaller sample the maximum sales volume criteria is positively correlated with the ratio of SME loans to GDP but not with the share of SME loans in total commercial bank loans. Moreover, the correlation between the ratio of SME loans to GDP and sales volume is not statistically significant once we control for income per capita.

These results provide a certain level of comfort and allow us to proceed in analyzing SME finance data using national definitions. Even though the definition introduces a substantial degree of heterogeneity in the data, it does not appear to influence the volume of SME financing reported by countries in a manner that would prevent cross-country comparison.

¹⁰ All regressions exclude countries where the higher cutoff for the definition of SMEs as defined by number of employees is 1,000 employees or more. In our sample, only South Korea and China fall into this category.

A number of macroeconomic and institutional factors are associated with greater levels of SME financing. Table 5 presents pairwise correlations of the ratio of SME loans to GDP and a number of macroeconomic and institutional factors.¹¹ Consistent with earlier research on SME and enterprise financing, we find a positive correlation between the overall level of economic development measured by income per capita and financial development measured by the ratio of private credit to GDP with the level of SME financing. Legal frameworks and the overall business environment are also important factors affecting the level of SME financing. For example, the ability to open and close a business is found to be an important factor associated with growth. Using information from the *Doing Business* database, we find a negative correlation between the number of days it takes to start and close a business and the value of SME financing.

In addition, we consider a number of parameters describing financial institutions operating in a country. We do not find a statistically significant correlation between the share of foreign- or state-owned banks and levels of SME financing, which is consistent with bank level evidence in Beck *et al.* (2008b). Unlike firm level analysis in Beck *et al.* (2005b), we do not find a statistically significant level of correlation between the level of bank concentration and the ratio of SME financing to GDP. However, broader retail outlet networks measured by the number of bank branches per 100,000 adults from the *Financial Access* database are associated with more SME financing. Countries where banks have less efficient structures measured by a higher ratio of overhead costs to total assets, higher interest rate margin and a greater cost to income ratio, tend to have lower levels of SME financing.

Even after controlling for the overall development using income per capita as a proxy, we find that the framework for starting businesses and the overall level of development of the financial market are significantly correlated with the levels of SME financing (Table 6). We also find that parameters characterizing efficiency of the banking system, including cost ratios and net interest margins, have statistically significant negative coefficients, even after controlling for the overall level of development.

¹¹ We have also conducted analysis using the share of SME loans in total loans but did not find significant correlations with various macroeconomic and business environment factors, except for a negative correlation between the share of SME loans in total loans and an offshore financial sector dummy.

4. Estimating global SME lending volume

Based on data availability and the predictive power of the various factors analyzed above, we use a specification in which the overall private credit to GDP ratio, number of days to start a business and a control for offshore financial centers are explanatory variables for the regression to estimate the SME loan volume to GDP ratio. Intuitively, these variables allow us to control for the following effects: (i) the ratio of the private credit to GDP captures the overall level of financial development by proxying for all relevant business environment and macroeconomic factors affecting extension of credit in a country, (ii) the number of days to start a business captures the idea that in those countries where it is easy to start a business, there are more formal SMEs to finance and higher levels of SME lending, and (iii) the offshore financial center dummy captures the idea that such countries might have high levels of credit as a percentage of GDP but low levels of SME financing.

Estimating this model with 45 observations yields an R^2 of 0.51 and coefficient estimates as follows:

$$\ln \frac{SME \text{ loans}}{GDP} = -5.27 + 0.90 \ln \frac{Dom. credit}{GDP} - 1.18 Offshore - 0.38 \ln days_start_bus$$

(0.87) (0.18) (0.68) (0.15)

These findings support earlier evidence on the importance of reforming business registration and other regulations affecting firm entry (World Bank, 2004). The longer it takes to start a business; the lower the ratio of SME loans to GDP. More developed financial markets, measured by the extent of domestic credit, imply higher levels of SME lending, and offshore financial centers have lower levels of SME lending.

Based on these estimates, the global volume of SME lending is predicted as roughly \$10 trillion in 2009 (Table 7).¹² The bulk of SME lending volume—70 percent—is concentrated in high income countries. The second largest market for SME loans is East Asia and Pacific, which

¹² Using a logarithmic specification for the dependent variable in the regression framework creates a retransform bias in the prediction exercise due to Jensen's inequality. We use the method by Duan (1983) to correct for the bias.

accounts for a quarter of the total SME lending volume. However, 90 percent of this amount is in China where the SME definition is broad and SMEs can employ up to 1,500 people. Excluding China, the total SME lending volume in East Asia and Pacific is comparable to Eastern Europe and Central Asia or about 3 percent of the total. Sub-Saharan Africa, Middle East and North Africa, and South Asia together account for only 1.7 percent of the total SME volume.

5. Conclusion

Expanding access to financial services by SMEs is a critical objective of the financial inclusion agenda. The G-20 has started focusing on financial inclusion in the global policy agenda since 2009 and has identified financial inclusion as a key driver of economic growth, reduced economic vulnerability for individual households, poverty alleviation, and improved quality of life for people around the world. SME access to finance is a fundamental component of this agenda. As part of the global efforts to collect data on SME financing, the *Financial Access* survey by CGAP/WBG initiated data collection on SME access to finance as a first attempt to identify the feasibility of collecting consistent cross-country data on SMEs from financial regulators.

This paper presents the data set resulting from this initiative, as well as a first analysis of the data. The data set is a first attempt to form a consistent cross-country database on SME access to finance. The main message emerging from the new data is that what constitutes an SME is quite different in different parts of the world. Nevertheless, these differences in SME definitions do not drive the variation in SME lending around the world. Income per capita, private credit to GDP, the legal and business environment, and the efficiency of the banking system are among the factors that influence SME lending.

Based on this data set, the total volume of SME loans around the world is predicted as roughly \$10 trillion in 2009. The bulk of SME lending volume—70 percent—is concentrated in high-income countries. The median ratio of SME loans to GDP in high-income countries is 13 percent, compared with only 3 percent in developing countries.

The main caveats and directions for improvement are as follows. First, the data are collected through a survey of regulators, and thus data availability and quality are based on the data collection processes of the regulators. Although SME financing data are generally not among the standard data collected by regulators, many regulators were able to provide the data. However, this indicates a potential avenue for improvement. As regulators improve their processes for collecting data, harmonizing the SME definition is crucial. Although financial institutions likely have information on the size of firms in terms of number of employees and/or sales volume at the time of loan application, they may not keep this information in their records. Thus, the only way for them to report on SME lending is based on the size of the loans. Unfortunately, in most cases, there is no unified definition of an SME, even within one country, due to this multiplicity of criteria.

Second, the data on SME lending are only based on those collected through regulated financial institutions, and in most cases, through commercial banks only. This severely underestimates SME lending volume, as one would expect that a sizeable amount of SME financing is done through unregulated and informal institutions. In some cases, even consumer loans could end up being used for commercial purposes. By going through secondary regulators, financial institutions, and firms themselves, the current data initiative could be strengthened.

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Table 1 – Monitoring SME lending

Country	Regulator monitors SME lending				Country	Regulator monitors SME lending			
	Yes, regularly	Yes, irregularly	No	No, but another agency does		Yes, regularly	Yes, irregularly	No	No, but another agency does
Afghanistan	+				Ecuador	+			
Albania		+		+	El Salvador	+			
Algeria	+				Estonia		+		
Anguilla			+		Ethiopia		+		
Antigua and Barbuda			+		Finland			+	
Argentina	+				France	+			
Armenia		+			Gambia	+			
Australia	+				Georgia	+			
Austria			+		Germany			+	
Azerbaijan		+		+	Ghana			+	
Bangladesh	+				Greece			+	
Belarus		+			Grenada			+	
Belgium			+	+	Guatemala	+			
Benin	+				Guinea Bissau	+			
Bosnia and Herzegovina	+				Honduras		+		+
Botswana			+	+	Hungary	+			
Brazil	+				India	+			
Bulgaria			+		Indonesia	+			+
Burkina Faso	+				Iran		+		
Cambodia	+				Israel			+	
Canada			+		Italy	+			
Cape Verde			+		Jamaica			+	
Chile			+	+	Japan	+			
Colombia			+	+	Jordan	+			
Costa Rica		+		+	Kazakhstan	+			
Cote d'Ivoire	+				Kenya	+			
Croatia			+		Korea	+			
Czech Republic			+		Latvia	+			
Denmark		+			Lebanon			+	+
Dominica			+		Liberia	+			
Dominican Republic		+		+	Lithuania			+	+

Table 1 – Monitoring SME lending (continued)

Country	Regulator monitors SME lending				Country	Regulator monitors SME lending			
	Yes, regularly	Yes, irregularly	No	No, but another agency does		Yes, regularly	Yes, irregularly	No	No, but another agency does
Macedonia			+		Serbia			+	
Madagascar			+		Sierra Leone	+			
Malawi			+		Singapore		+		
Malaysia	+				Slovak Republic			+	
Mali	+				Slovenia	+			
Mauritania	+				South Africa	+			
Mauritius				+	Spain			+	
Mexico		+			St. Kitts and Nevis			+	
Moldova	+				St. Lucia			+	
Mongolia	+				St. Vincent and the Grenadines			+	
Montserrat			+		Sudan	+			
Morocco	+				Switzerland			+	+
Mozambique			+		Syria	+			
Namibia			+	+	Taiwan	+			+
Netherlands	+				Tajikistan	+			
New Zealand			+		Thailand	+			
Nicaragua			+	+	Togo	+			
Niger	+				Tunisia	+			
Nigeria	+				Turkey	+			+
Norway		+			Uganda	+			
Pakistan	+				United Arab Emirates			+	
Panama			+		United Kingdom			+	
Peru	+				United States			+	
Philippines	+				Uruguay	+			
Poland	+				Uzbekistan	+			
Portugal		+			Venezuela			+	+
Puerto Rico			+		Yemen			+	
Russia	+				Zambia			+	+
Rwanda			+		Zimbabwe	+			+
Senegal	+								

Table 2 - SME Definitions

	Maximum Number of Employees	Maximum Sales	Maximum Loan Size
Afghanistan	100	995,355	
Albania	249	2,632,185	
Argentina		23,900,000	
Armenia	100		
Australia			1,559,833
Azerbaijan	5	124,412	311,029
Bangladesh	150		
Botswana	100	698,301	
Canada	499	43,700,000	4,374,069
Cape Verde	51	1,889,713	
Colombia	200		
Costa Rica		540,000	
Croatia	250		
Dominican Republic			13,879
El Salvador	50	1,000,000	
Estonia	50	4,340,278	1,388,889
France		69,400,000	
Germany	250	73,500,000	
Ghana	30	2,129,472	
Greece	250	69,400,000	
Guatemala			19,604
Hong Kong SAR, China	100		
Hungary	250	69,400,000	
Indonesia		4,812,349	
Iran, Islamic Rep.	50		
Ireland	249		
Italy	20		
Kazakhstan	250		
Korea, Rep.	1,000	117,000,000	
Kuwait			868,703
Lao PDR	99	117,426	
Latvia	250		
Lebanon		5,000,000	
Liberia	16	262,500	155,000
Lithuania	249	55,600,000	
Madagascar		2,555,968	
Malaysia	150	7,093,199	
Mexico	250	18,500,000	

Table 2 – SME definitions (continued)

	Maximum Number of Employees	Maximum Sales	Maximum Loan Size
Moldova	249	4,500,622	
Mongolia	199	1,043,264	
Morocco		6,205,707	124,114
Netherlands		73,500,000	
New Zealand	19		
Nigeria	250		
Oman	99	5,201,561	
Pakistan	250		
Panama		2,500,000	
Peru			9,962
Poland	250		
Portugal	249		
Russian Federation	250	31,500,000	
Serbia, Rep. of	250	13,900,000	
Slovenia	250	48,600,000	
South Africa		47,200,000	885,094
Spain	250	13,900,000	
Sudan	10		
Syrian Arab Republic			107,048
Taiwan, China	200	2,420,099	
Tajikistan			12,069
Thailand	200		
Tunisia	300		
Ukraine	50	8,984,449	
United Kingdom	250	35,500,000	
United States			1,000,000
Uruguay	100	3,323,292	
Uzbekistan	100		
Zambia	50	49,543	
Zimbabwe	20		50,000

Table 3 - SME Lending

	Total value of outstanding loans to SMEs (usd)	Total number of outstanding loans to SMEs	Total number of SMEs with outstanding loans
Afghanistan	239,000,000	1,990	422,352
Albania	1,390,000,000		
Argentina	4,210,000,000	761,950	60,000
Armenia	520,000,000		
Australia	156,000,000,000		
Bangladesh	13,700,000,000		403,181
Belgium	107,000,000,000	325,595	172,706
Botswana	54,100,000		
Brazil	60,700,000,000	7,264,216	1,603,346
Cape Verde	10,300,000	242	190
China	2,110,000,000,000		
Costa Rica	1,280,000,000	74,863	44,979
Ecuador	1,510,000,000	771,683	
El Salvador	1,280,000,000	62,583	
Estonia	7,150,000,000	46,228	
France	303,000,000,000	499,493	270,475
Georgia	709,000,000	283,767	
Guatemala	197,000,000	155,536	
Hong Kong SAR, China	1,650,000,000	19,754	
Hungary	18,400,000,000	186,452	
India	52,900,000,000	4,851,082	
Indonesia	3,460,000,000	2,823,027	
Iran, Islamic Rep.	22,900,000,000	644,784	
Italy	262,000,000,000		915,637
Japan	1,760,000,000,000		
Jordan	2,040,000,000		
Kazakhstan	8,480,000,000		
Korea, Rep.	347,000,000,000		
Latvia	14,300,000,000	56,219	
Liberia	20,400,000	571	551
Malaysia	34,000,000,000	526,067	
Mongolia	336,000,000	45,323	45,323
Morocco	8,970,000,000		
Netherlands	463,000,000,000		
Pakistan	4,260,000,000		212,387
Panama	750,000,000	5,191	
Peru	1,390,000,000	1,896,923	1,334,794
Poland	41,200,000,000	127,100	

Table 3 - SME Lending (continued)

	Total value of outstanding loans to SMEs (usd)	Total number of outstanding loans to SMEs	Total number of SMEs with outstanding loans
Portugal	126,000,000,000	671,898	214,002
Russian Federation	84,300,000,000		
Singapore	27,200,000,000		
South Africa	29,700,000,000		
Taiwan, China	97,000,000,000		
Tajikistan	18,700,000		
Thailand	80,100,000,000		919,098
Turkey	58,600,000,000		1,664,254
United States	700,000,000,000		
Uruguay	2,210,000,000	298,591	
Uzbekistan	1,230,000,000		

Table 4 – SME lending volume and SME definition

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		SME loans/GDP				SME loans/total loans		
Income per capita, log	0.045** (0.017)	0.031 (0.020)			0.001 (0.016)		-0.018 (0.023)	
Maximum number of employees, log	-0.000 (0.022)		0.025 (0.020)		0.027 (0.019)	0.027 (0.017)		
Maximum sales volume, log		0.013 (0.017)		0.029** (0.014)			0.022 (0.016)	0.010 (0.010)
Constant	-0.272** (0.133)	-0.353 (0.223)	-0.005 (0.096)	-0.334 (0.214)	0.032 (0.136)	0.046 (0.080)	0.007 (0.173)	0.029 (0.169)
N	44	33	46	34	44	46	33	34
Adjusted R ²	0.155	0.117	-0.002	0.109	-0.015	0.009	-0.002	-0.006

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 5 – Pairwise correlations

	SME credit/GDP	GNI per capita (2007)	GDP growth (2007)	Inflation (2007)	Interest spread (2007)	Lending rate (2007)	real interest rate (2007)	Share of rural population (2007)	Expected real growth (2009)	GDP growth (average 2002-2007)	Domestic Credit/GDP growth (avg 2002-2007)	Domestic credit/ GDP 2007	Legal rights index (2007)	Credit information index (2007)	Closing business - days (2007)	Contract enforcement - procedures (2007)	Contract enforcement - time (2007)	Starting a business - time (2007)	Market capitalization/ GDP (2007)	Self-employed % (2007)	SME definition max number of employees	Fuels and minig/ GDP (2007)	foreign owned banks, share of assets	Government owned banks, share of assets	Banking concentration	Branches per 100,000 adults	Overhead costs/total assets (avg. 2002-2007)	Net interest margin (avg. 2002-2007)	Bank Cost/Income (avg 2002-2007)
SME credit/GDP	1.000																												
GNI per capita (2007)	0.4477*	1.000																											
GDP growth (2007)	-0.5858*	-0.5121*	1.000																										
Inflation (2007)	-0.3307*	-0.4732*	0.3899*	1.000																									
Interest spread (2007)	-0.3980*	-0.3943*	0.174	0.095	1.000																								
Lending rate (2007)	-0.3938*	-0.5276*	0.2965*	0.3211*	0.8630*	1.000																							
real interest rate (2007)	-0.180	-0.101	0.071	-0.2967*	0.7382*	0.6148*	1.000																						
Share of rural population (2007)	-0.093	-0.7485*	0.3647*	0.3618*	0.184	0.2675*	0.073	1.000																					
Expected real growth (2009)	-0.3655*	-0.4872*	0.5119*	0.2361*	0.050	0.105	0.034	0.3379*	1.000																				
GDP growth (average 2002-2007)	-0.4414*	-0.2551*	0.6603*	0.5670*	-0.010	0.191	-0.154	0.114	0.1735*	1.000																			
Dom.Credit/GDP, growth (avg 2002-2007)	-0.131	-0.137	0.2097*	0.3258*	0.075	0.2100*	-0.005	0.123	-0.038	0.4108*	1.000																		
Domestic credit/ GDP (2007)	0.6726*	0.7463*	-0.5310*	-0.4120*	-0.3836*	-0.5499*	-0.057	-0.4703*	-0.3052*	-0.3940*	-0.152	1.000																	
Legal rights index (2007)	0.152	0.3844*	-0.2406*	-0.072	-0.2554*	-0.2759*	-0.088	-0.150	-0.2913*	-0.070	0.046	0.4133*	1.000																
Credit information index (2007)	0.182	0.5494*	-0.2024*	-0.2667*	-0.107	-0.172	-0.047	-0.5635*	-0.2743*	-0.018	-0.137	0.3325*	0.1658*	1.000															
Closing business - days (2007)	-0.3864*	-0.5864*	0.5184*	0.3009*	0.209	0.3067*	0.027	0.3067*	0.2610*	0.3284*	0.105	-0.6066*	-0.4010*	-0.2549*	1.000														
Contract enforcement - procedures (2007)	-0.3435*	-0.4750*	0.3417*	0.1922*	0.2714*	0.199	0.204	0.3811*	0.2747*	0.1941*	0.062	-0.4967*	-0.3396*	-0.3567*	0.4880*	1.000													
Contract enforcement - time (2007)	-0.159	-0.2720*	0.088	-0.075	0.165	0.140	0.127	0.1888*	0.2523*	-0.050	-0.104	-0.2964*	-0.2829*	-0.125	0.2703*	0.3680*	1.000												
Starting a business - time (2007)	-0.3061*	-0.3956*	0.3048*	0.1758*	0.2200*	0.2146*	-0.005	0.3198*	0.158	0.141	-0.046	-0.4188*	-0.2995*	-0.2262*	0.4297*	0.3260*	0.2791*	1.000											
Market capitalization/ GDP (2007)	0.059	0.3836*	-0.167	-0.3795*	-0.179	-0.3489*	0.010	-0.3426*	0.165	-0.3751*	-0.5083*	0.4734*	0.100	-0.054	-0.2564*	-0.188	0.051	-0.062	1.000										
Self-employed % (2007)	-0.348	-0.7127*	0.5374*	0.5578*	0.4921*	0.6282*	0.193	0.3924*	0.4776*	0.5568*	0.021	-0.5624*	-0.4859*	-0.144	0.4598*	0.4387*	0.2804*	0.3881*	-0.224	1.000									
SME definition max number of employees	0.144	0.3185*	-0.175	-0.4992*	0.107	0.038	0.240	-0.131	-0.200	-0.233	-0.012	0.177	0.026	0.2805*	-0.2693*	-0.152	-0.035	0.006	0.142	-0.4288*	1.000								
Fuels and minig/ GDP (2007)	-0.045	0.012	0.167	0.158	-0.170	-0.101	-0.3251*	-0.1783*	0.101	0.1799*	-0.046	-0.2703*	-0.2108*	-0.094	0.183	0.149	-0.046	0.132	0.012	0.163	-0.217	1.000							
foreign owned banks, share of assets	-0.112	-0.059	-0.052	0.091	0.004	0.058	0.083	0.067	-0.2164*	0.042	0.2324*	-0.215	0.202	-0.104	0.114	-0.124	-0.147	-0.060	-0.3323*	-0.085	-0.244	-0.079	1.000						
Government owned banks , share of assets	-0.193	-0.2346*	0.3634*	0.171	0.167	0.185	0.005	0.091	0.3529*	0.2787*	-0.053	-0.3071*	-0.2843*	-0.079	0.3416*	0.3379*	0.2700*	0.2768*	-0.121	0.4546*	0.103	0.036	-0.2916*	1.000					
Banking concentration	0.002	-0.168	-0.009	0.107	-0.012	0.004	0.018	0.2191*	0.2052*	-0.042	-0.021	-0.117	-0.109	-0.3717*	-0.049	0.039	-0.117	-0.050	-0.033	-0.139	-0.2899*	0.173	0.184	-0.195	1.000				
Branches per 100,000 adults	0.3114*	0.7711*	-0.3565*	-0.3971*	-0.3210*	-0.4164*	-0.076	-0.5961*	-0.3949*	-0.2329*	-0.090	0.5722*	0.3065*	0.4886*	-0.3190*	-0.2896*	-0.145	-0.3323*	0.103	-0.3495*	0.181	-0.106	-0.028	-0.158	-0.147	1.000			
Overhead costs/total assets (avg. 2002-2007)	-0.4401*	-0.4484*	0.3156*	0.176	0.4501*	0.4725*	0.2763*	0.2545*	0.1978*	0.061	0.122	-0.5310*	-0.2015*	-0.1834*	0.2229*	0.120	0.011	0.3021*	-0.2647*	0.3743*	-0.136	-0.067	0.073	0.043	0.083	-0.3835*	1.000		
Net interest margin (avg 2002-2007)	-0.5338*	-0.5774*	0.3939*	0.3446*	0.5836*	0.6576*	0.3187*	0.3215*	0.2274*	0.019	-0.005	-0.6349*	-0.140	-0.2776*	0.2988*	0.1842*	0.013	0.3405*	-0.3051*	0.5906*	-0.2964*	0.2099*	0.085	0.050	0.145	-0.4564*	0.7402*	1.000	
Bank Cost/Income (avg 2002-2007)	-0.186	-0.095	-0.009	-0.1853*	0.074	0.015	0.135	0.039	0.088	-0.095	0.079	-0.2240*	-0.2169*	0.011	0.014	0.082	0.104	0.038	-0.093	0.042	0.181	-0.4244*	0.162	-0.036	0.000	-0.079	0.4514*	0.088	1.000

* significant at 5percent

Table 6 – Cross-country covariates of SME loan volume/GDP. Dependent variable: SME loans/GDP (log)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
GNI per capita (2007, log)	0.482*** (0.162)	0.439* (0.236)	0.309 (0.207)	0.438** (0.176)	0.505*** (0.152)	-0.048 (0.173)	0.442*** (0.133)	0.487*** (0.131)	0.409** (0.171)	0.464*** (0.130)	0.313** (0.134)	0.444*** (0.162)	0.561*** (0.188)	0.534*** (0.195)	0.509*** (0.152)	0.452*** (0.157)	0.388*** (0.129)	0.311** (0.136)	0.540*** (0.141)
Offshore financial center dummy	-1.098* (0.621)	-0.995 (0.654)	-1.009 (0.640)	-0.925 (0.619)	-0.909 (0.611)	-1.050 (0.720)	-1.120* (0.620)	-1.010 (0.602)	-1.064* (0.604)	-1.026* (0.594)	-1.016 (0.617)	-0.983 (0.593)	-0.483* (0.252)	-1.020 (0.619)	-0.992 (0.618)	-1.003 (0.603)	-1.248* (0.655)	-1.099 (0.659)	-1.427** (0.688)
Maximum inflation (1997-2007)	-0.012* (0.006)																		
Interest spread (2007)		-0.057* (0.031)																	
Lending rate (2007)			-0.043 (0.026)																
GDP growth (average 2002 -2007)				-0.034 (0.086)															
Dom.Credit/GDP,growth (avg 2002-2007)					1.331 (1.700)														
Domestic credit/ GDP (2007)						0.016*** (0.005)													
Legal rights index (2007)							0.067 (0.081)												
Credit information index (2007)								-0.021 (0.153)											
Closing business - days (2007)									-0.202 (0.360)										
Contract enforcement - time (2007)										-0.082 (0.361)									
Starting a business - time (2007)											-0.465** (0.173)								
Fuels and mining/ GDP (2007)												0.504 (2.292)							
Foreign owned banks, share of assets													-0.658 (0.951)						
Government owned banks , share of assets														0.376 (0.914)					
Banking concentration															-0.302 (0.995)				
Branches per 100,000 adults (log)																0.061 (0.216)			
Overhead costs/total assets (avg, 2002-2)																	-22.983*** (5.936)		
Net interest margin (avg, 2002-2007)																		-21.433*** (6.473)	
Bank Cost/Income (avg 2002-2007)																			-2.580** (1.259)
Constant	-6.747*** (1.546)	-6.168** (2.239)	-4.908** (2.058)	-6.367*** (1.974)	-7.284*** (1.481)	-3.411** (1.419)	-6.956*** (1.148)	-6.883*** (1.154)	-6.077*** (1.782)	-6.258** (2.694)	-4.104*** (1.346)	-6.625*** (1.514)	-7.446*** (1.842)	-7.486*** (1.880)	-7.002*** (1.585)	-6.834*** (1.199)	-5.097*** (1.337)	-4.385*** (1.428)	-5.696*** (1.479)
N	43	29	32	45	43	40	45	45	43	45	45	41	35	36	44	45	44	44	44
Adjusted R2	0.224	0.144	0.117	0.190	0.184	0.326	0.200	0.188	0.197	0.188	0.289	0.120	0.223	0.160	0.186	0.188	0.363	0.347	0.256

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 7 – Regional breakdown of SME financing (predictions)

Region	SME loans/GDP (medians) percent	SME loans, USD, bn.
East Asia & Pacific	6.40	2,340
Europe & Central Asia	7.00	276
High Income (OECD and non-OECD)	15.30	7,540
Latin America & Caribbean	3.90	158
Middle East & North Africa	5.50	48
South Asia	4.30	73
Sub-Saharan Africa	2.60	52
World	5.10	1,050

Appendix 1 – Variable Definitions

Variable	Description	Source
Adult population	Adult population in 2009. When the 2009 data are not available, we use the most recent	World Development Indicators
Bank cost/income	Bank Cost-Income Ratio, 5-year average (2002-2007)	Financial Structure Database
Banking concentration	Share of deposits in the five largest banks	Barth, Caprio, and Levine (2004)
Branches per adult	Number of branches per 100,000 adults	Financial Access Database (2010)
Closing business - days	The average time to close a business, 2007	World Bank Doing Business Indicators (2008)
Contract enforcement - procedures	The average number of procedures to enforce a contract, 2007	World Bank Doing Business Indicators (2008)
Contract enforcement - time	The time to resolve a dispute, counted from the moment the plaintiff files the lawsuit in court until payment, 2007.	World Bank Doing Business Indicators (2008)
Credit information index	Getting credit, Credit Information Index, 2007. This index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau.	World Bank Doing Business Indicators (2008)
Domestic credit/GDP	Domestic credit to GDP, 2007	World Development Indicators
Expected real growth	Expected real growth rate of GDP per capita, 2009	World Development Indicators
Foreign owned banks, share of assets	Percentage of banking system assets in banks 50percent + owned by foreign entities	Barth, Caprio, and Levine (2004)
Fuels and mining/GDP	Exports of fuels and mining products (current USD) as percent of GDP, 2007	WTO
GDP growth	Gross Domestic Product per capita in current dollars of 2007	World Development Indicators
GDP growth avg	GDP growth 5 year average 2002-2007	World Development Indicators
GNI per capita	Gross National Income per capita in current dollars of 2007	World Development Indicators
Inflation	Inflation, consumer prices (annual percentage) 2007	IFS
Interest spread	Interest rate spread (lending rate minus deposit rate, percent) 2007	IFS
Legal rights index	Getting credit, Legal Rights Index, 2007. This index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending.	World Bank Doing Business Indicators (2008)

Appendix 1 (continued)

Variable	Description	Source
Lending rate	Lending interest rate (percent) 2007	IFS
Market capitalization/GDP	Market capitalization of listed companies as percent of GDP, 2007	World Development Indicators
Net interest margin	Net Interest Margin, 5-year average (2002-2007)	Financial Structure Database
Number of outstanding loans to SMEs	Regulatory agency provided the latest estimate for the total number of outstanding loans to SMEs	Financial Access Database (2010)
Number of SMEs with outstanding loans	Regulatory agency provided the latest estimate for the total number of SMEs with outstanding loans	Financial Access Database (2010)
Offshore financial center	Equals one if the country was defined by the IMF as an offshore center in 2008	IMF
Overhead costs/total assets	Bank Overhead Costs divided by Total Assets, 5-year average (2002-2007)	Financial Structure Database
Periodic reporting	If regulatory agency monitors the level of lending to SMEs through periodic surveys of financial institutions	Financial Access Database (2010)
Regular reporting	If regulatory agency monitors the level of lending to SMEs through regular reporting	Financial Access Database (2010)
Reporting from credit registry	If regulatory agency monitors the level of lending to SMEs using estimates from credit registry	Financial Access Database (2010)
Self-employed	Self-employed as percent of total employed, 2007	World Development Indicators
Share of rural population	Rural population (percent of total population) 2007	World Development Indicators
SME definition - loan size	Regulatory agency uses loan size as criteria to define SMEs	Financial Access Database (2010)
SME definition - max number of employees	Regulatory agency uses member of employees as criteria to define SMEs	Financial Access Database (2010)
SME definition - sales	Regulatory agency uses sales as criteria to define SMEs	Financial Access Database (2010)
Starting a business - time	The total number of days required to register a firm, 2007	World Bank Doing Business Indicators (2008)
Value of outstanding loans to SMEs	Regulatory agency provided the latest estimate for the total value of outstanding loans to SMEs	Financial Access Database (2010)